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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/763,481	04/23/2001	Axel Noethe	1-15247	7474

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EXAMINER

MCDONALD, RODNEY GLENN

ART UNIT

PAPER NUMBER

1753

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/763,481

Applicant(s)
Noethe et al.

Examiner
Rodney McDonald

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1753



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above, claim(s) 12 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 6
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Election/Restriction

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 1-11, drawn to a process for producing an electrochromatic coating on a substrate.

Group II, claims 12-13, drawn to an electrochromatic element.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature does not provide a contribution over the prior art because the special technical feature is disclosed in WO 96/06203 to O'Brien et al. (See International Search Report).

3. During a telephone conversation Philip Oberlin on July 24, 2002 reaffirmed a provisional election was made with traverse to prosecute the invention of Group I, claims 1-11. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12-13 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accomplished by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

Claim Rejections - 35 USC § 112

5. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 4, it is unclear whether "in particular argon" is a limitation of the claim and whether the claim is meant to be limited to argon.

Claim 6, line 4, it is unclear whether "in particular approximately 1:1" is a limitation of the claim and whether the claim is meant to be limited to this ratio.

Claim 7, line 4, it is unclear whether "in particular approximately 1:1" is a limitation of the claim and whether the claim is meant to be limited to this ratio.

Claim 8, lines 3 and 4, it is unclear whether "in particular of 1×10^{-2} mbar to 4×10^{-2} mbar" is a limitation of the claim and whether the claim is meant to be limited to this range of pressures.

Claim 10, line 3, the phrase "and/or" is indefinite.

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Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Wandke (DE 43 05 414 A1 (See translation)).

Wandke teach coating a substrate with a metal oxide layer especially a stannic oxide layer, in a vacuum in which a corresponding metal target is inserted into a corresponding chamber and eroded, and this erosion coats the substrate, whereby an oxygen-containing plasma arising from a corresponding basic gas mixture is created in the area between the target and substrate. (Page 1)

The problem is solved according to the invention using the initially-described coating procedure by using a balanced oxidizing and reducing basic gas mixture consisting of at least 20 percent by volume oxygen, hydrogen and a gaseous hydrocarbon or halogenated hydrocarbon in the coating procedure. (Page 1)

It is also advantageous when the described mixture also contains 5-40 percent by volume argon. (Page 1)

Examples of effective gas mixtures have the following compositions:

20-30 percent by volume H₂, 20-50 percent by volume O₂, 20-30 percent by volume hydrocarbons or fluorocarbons with the remainder argon. (Page 2)

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The figure shows a block diagram of a sputtering system according to the invention; in particular, an associated sputtering chamber 1 is shown. A substrate 2, e.g. a glass pane, is on the floor of the sputtering chamber. Opposite the glass pane in the sputtering chamber is a negatively poled target 3 (e.g. consisting of pure tin) on a holder 4. A gas supply 5 and a gas exhaust 6 are connected to the chamber. Also on the side of the chamber is an anode 7 consisting of steel or copper which is required for the ion stream (sputtering effect). (Page 2)

The flat glass workpiece is coated with a stannic oxide layer as follows: Tin atoms are knocked out of the intended target 3 by a stream of ion from the target, oxidize in the oxygen-containing atmosphere in the sputtering chamber to form SnO, and are deposited on the substrate 2, i.e., the glass surface. Usually the SnO layer forms the base layer of a multilayer system applied on the glass. The pressure during formation of such a layer is approximately 0.01-20 mbar which is set by suitably feeding and removing the treatment gas by the corresponding devices 5 and 6. (Page 2 and 3)

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was

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commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wandke (DE 43 05 414 A1) in view of Giron (U.S. Pat. 6,277,523).

Wandke is discussed above and all is as applies above. (See Wandke discussed above)

The differences between Wandke and the present claims is that the hydrocarbon being saturated is not discussed, the saturated hydrocarbon being one of methane, ethane, propane or butane is not discussed, the volumetric ratio of added hydrocarbon to added oxygen is not discussed, the volumetric ratio of added noble gas to oxygen is not discussed, the tin oxide layer being electrochromic is not discussed, the target being tungsten is not discussed, the target containing molybdenum, titanium, cerium, vanadium and/or zirconium is not discussed and the thickness of the electrochromic layer is not discussed.

Wandke's "gaseous hydrocarbons" encompass saturated hydrocarbons such as methane, ethane, propane or butane and therefore teach applicant's claim limitations. (See Wandke discussed above)

Wandke disclose utilizing 20 percent O₂ and 20 percent hydrocarbon this is in a ratio of hydrocarbon to oxygen of 1:1. (See Wandke discussed above)

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Wandke disclose 5-40 percent Ar and 20-50 percent O₂ this range allows for a ratio of argon to oxygen of 1:1. (See Wandke discussed above)

Giron teach an inhibited *electrochromic* layer of *WO₃*, *Nb₂O₃*, *SnO₂*, *Bi₂O₃*, *TiO₂*, *V₂O₅*, hydrogenated nickel oxide or MoO₃ material which exists in a decolored or only slightly colored state. (Column 16 lines 10-22)

All the oxide-based layers are obtained by this technique using a metal target, but in a reactive atmosphere containing oxygen. (Column 9 lines 37-40) Since Giron teach utilizing a metal target to deposit the corresponding metal oxide it would be obvious to utilize targets containing tungsten, molybdenum, titanium, cerium, vanadium and/or zirconium.

Giron teach a layer of electrochromic material based on tungsten oxide of 350 nm thickness. (Column 10 lines 11-12)

The motivation for depositing electrochromic layers utilizing targets of metals for depositing the particular compositions of the layers in particular atmospheres at particular thicknesses by sputtering is that it allows for simplifying the method of manufacturing of the electrochromic devices. (Column 2 lines 28-32)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Wandke by depositing electrochromic layers utilizing targets of metals for depositing the particular compositions of the layers in particular atmospheres at particular thicknesses by sputtering as taught by Giron because it allows for simplifying the method of manufacturing of the electrochromic devices.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney McDonald whose telephone number is 703-308-3807. The examiner can normally be reached on M-Th from 8 to 5:30. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen, can be reached on (703) 308-3322. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



RODNEY G. MCDONALD
PRIMARY EXAMINER

RM

August 01, 2000